From Research Need to Research Result

View Diagram

You have a research idea – what do you do?

1. **Identify related research needs, research in progress, and completed research.**
   Librarians are a great resource. Summarize your sources and findings.

   a. **Research Needs:** Identifying related research needs can facilitate coordination and collaboration.
      i. TRB Research Needs Statements (RNS) database searches research needs developed by TRB Committees and AASHTO Transportation and Environmental Research Ideas (TERI) Database.
      ii. Transportation Research Needs Meta Search searches various websites for research needs, including TRB RNS, TERI, unfunded pooled-fund studies, unfunded National Cooperative Highway Research Program (NCHRP) problem statements (FY 2010, 2011, and 2012). More unfunded research needs for TRB Cooperative Research Programs and other research programs will be added as they are available.
      iii. Transportation Research Collaboration website contains information on Setting the Research Agenda, Strategic Research Documents (roadmaps, research needs) and specific topical areas with the Research Clusters part of this website. FHWA also hosts Knowledge Sharing Communities to identify the state of the practice and state of the art on various topical areas.

   b. **Research in Progress**
      i. Research in Progress (RIP) Database searches research currently being conducted.
      ii. Transport Research and Innovation Portal (TRIP) searches European research in progress (and completed research). TRB contributes RIP records.
      iii. USDOT Research Hub searches USDOT research in progress (and completed). TRB contributes RIP records.

   c. **Completed Research**
      i. NTL Integrated Search searches the USDOT Headquarters Catalog, Digital Repository of full text research reports, and records that point to external transportation website content. Website content is diverse and includes data sets, publications, and institutional information.
      ii. Transportation Research international Documentation Database (TRID) searches completed research (Note: the RIP database is copied into TRID nightly, so you can search both by searching TRID).
      iii. Transport Research and innovation Portal (TRIP) searches completed (and in progress) European research.
      iv. USDOT Research Hub searches USDOT completed research (and research in progress)
      v. Other Transportation Libraries and Information Centers may provide additional information.

If the research has been completed but the findings have not been deployed, identify the barriers and develop a strategy to support deployment. This could be achieved through a research project. Making good use of investments is critically important.

What do you do if the idea has not been addressed adequately or at all? [Note: This can be an iterative process with the next set of steps (Where can you obtain research funding?)]

1. **Develop/revise research problem/needs statement (RNS).**

   a. **It is important to explain how this new research need relates to active or completed research.** Good problem statements die in the review process if a decision maker thinks the proposed problem statement is already being addressed by another current or past research project.

   b. **Develop your well-written problem statement/RNS with a funding program in mind** to make sure the specific requirements of the funding program are met and to increase the chances of your problem statement/RNS being funded. The Funding Guidebook lists many funding programs with criteria and contains an appendix on How to Write an Effective Research Problem Statement. Most funding programs many more research ideas than are funded; take care to develop a well-written and effective problem statement/RNS.

2. **[For TRB Committee Research Coordinators (CRCs)] Identify potential TRB committees with which to partner.** Consider similar research needs in the RNS database and include those committee participants in your development and/ or review.

3. **[For CRCs] Vet the RNS** with your TRB committee and those with which your committee is partnering.

4. **[For CRCs] Enter into/revise in RNS database.**

Where can you obtain research funding? [Note: This can be an iterative process with the previous set of steps (What do you do if the idea has not been addressed adequately or at all?)]

1. **Identify the appropriate funding program for your problem statement/RNS.** The Research Funding Guidebook provides information on research programs to which you can submit your problem statement/RNS. The Guide is organized to help you match your topic to the most appropriate funding program(s). Pay attention to timelines. Some funding agencies have distribution lists for individuals who want to be notified of active solicitations for research needs and/or proposals; get on these lists so you don't miss an opportunity.

2. **Know the funding program process.**

   a. Who can submit research needs?

b. Are there specific research focus areas? If so, relate your need to one or more of these focus areas.

c. Are champions required and, if so, who can be a champion? Find a champion for your research need.

d. Who prioritizes the research needs? Explain how the proposed research will address their interests and goals.

e. Know who makes the funding decisions. Explain how the proposed research will address their interests and goals.

Example 1: How to submit a research need as an NCHRP Project and get it funded?

The National Cooperative Highway Research Program (NCHRP) is a state DOT funded program managed by TRB. State DOTs, AASHTO Committees, and FHWA can submit research ideas, which are due September 15th of each year. The Program addresses highway-needs (includes intermodal and multimodal).

Problem Statement/RNS Submittal:

[For CRCs] TRB Committees may submit problem statements/RNS to NCHRP through their Members and Friends that are employees of a state DOT or FHWA or by collaborating with the AASHTO Committee associated with their topical interests. If state DOT members are not familiar with the process, they should contact their Research Director for assistance. TRB Committees may also submit directly to NCHRP, but a sponsor must be identified from a state DOT, AASHTO committee, or FHWA before the problem statement/RNS is accepted for review. Try to find an individual or group of individuals to champion your RNS by requesting a high rating from their colleagues on the SCOR and RAC committees.

Keep in mind the state DOTs and the majority of the program funding addresses applied research needs of the practitioners that own and operate the highway system. Successful NCHRP research ideas, for the most part, outline practical, applied, and implementable research.

Project Rating:

Problem statements/RNS are rated each January/February by the following groups.
1. The AASHTO Research Advisory Committee (RAC) members
2. The AASHTO Standing Committee on Research (SCOR) members
3. Some topic areas are also rated/ranked by AASHTO committees or focus groups.

Project Selection/Program Development:

The AASHTO Standing Committee on Research (SCOR) reviews and discusses the ranking and selects the program of projects that will be funded each year. Research program decisions are made at the end of March of each year.

Final Problem Statement/RNS Approval:

Each project recommended by SCOR is approved by the AASHTO Board of Directors (state DOT CEOs) via e-mail ballot by the summer of each year. Each project must receive support from at least 2/3 of the Board of Directors.

Not all funding agencies inform submitters of the fate of their research need and/or proposal; you may need to check back with the funding agency. If your problem statement/RNS is not funded, ask why and make the appropriate changes to the problem statement/RNS for next time. Sometimes good ideas are left on the table because funding is limited. Learn what you can from the process and try again.

Scope of Work/RFP Development and Monitor Progress:

NCHRP and many other programs appoint a technical advisory panel to take the problem statement and develop a work scope for the purpose or requesting proposals, reviewing proposals, and monitoring technical progress. In some cases problem statements are merged with similar statements or modified during the approval process. Volunteering to serve on the technical review panel is helpful for assuring that the research continues its focus on solving the original problem (though there can be good reasons why the focus can shift as new information comes becomes known).

Example 2: How to submit a research need as an NCHRP Synthesis Topic and get it funded?

NCHRP syntheses are funded through a regular NCHRP project (20-05) – Synthesis of Information Related to Highway Problems. But they are different in that they are not a full-scale research effort. A research need may be on a topic on which much information already exists, either in documented form or in terms of undocumented experience and practice, but is often fragmented, scatted, and under evaluated. Therefore, it can be best addressed as a synthesis.

Syntheses are state-of-the-practice reports oriented toward practical solutions of specific highway problems. The specific objectives of a synthesis are 1) to locate and assemble information; 2) to learn what practice has been used; 3) to identify ongoing and recently completed research; 4) to learn what problems remain largely unsolved; and 5) to organize, evaluate, and document the useful information acquired.

Problem Statement/RNS Submittal:

Unlike problem statements for full-scale research, a problem statement/RNS for a synthesis topic can be submitted by anyone.   An online form is available to submit. Research ideas are due in mid-February of each year.

Project Selection/Program Development:

The NCHRP 20-05 project panel, consisting of a subject-matter cross section of members from transportation agencies, consultants, and academia, selects the topics to be funded in May of each year. A well written statement, along with endorsements from a TRB committee, AASHTO committee, or state DOT helps make the case for selecting a particular topic. Approximately 13 topics are funded each year. The panel tries to select topics representing different subject areas with top rated topics.

Scope of Work/RFP Development and Monitor Progress:

NCHRP appoints a synthesis panel to develop a work scope from the problem statement, select a contractor to do the work, and monitor technical progress. Volunteering to serve on the synthesis panel is helpful for assuring that the research continues its focus on solving the original problem (though there can be good reasons why the focus can shift as new information becomes known).

The Funded Project

1. When your research need statement is successfully funded take a moment to celebrate.

2. The funding organization should make sure the project is entered into the RIP database.

3. Follow the progress of the research project to completion. This may include providing information or suggestions for course modification through the life of the project.

The Completed Project

1. Share/disseminate the information.

   a. The funding organization should make sure the final report is added to:
   i. TRID Database (The final report/products or a link to these items also can be e-mailed to tris-trb@nas.edu.)
   ii. National Technical Information Service (NTIS) (The final report/products or a link to these items should be e-mailed to Input@ntis.gov).

   b. Talk with a librarian about adding the final report to WorldCat (the World's largest database of library records).

   c. Share the information through the Transportation Research Collaboration Research Clusters and FHWA Knowledge Sharing Communities or other topically relevant committees (with other TRB Committees, AASHTO committees, etc.)

2. **Support the deployment and implementation of the results.**

   a. If the project result produces a product from which the transportation community can benefit, develop a communication strategy to raise awareness and initiate deployment. Work within your community to identify the best mechanisms and resources for deploying the results. This can be a part of the research project or a follow-up implementation research project.

b. The Transportation Research Collaboration Research Program and Project Management (RPPM) website can help with information on Delivering Results and Communicating Value.

3. **Support the documentation of the value of the research.**

   In addition to using the resources in RPPM:
   a. NCHRP Report 610 *Communicating the Value of Research* (2010) provides guidance on integrating communication strategies into the research process. A webinar has also been recorded on the findings from this project.

   b. Research programs always fight a perception of research for the sake of research. ***It is very important that you be advocates for the results and value of the projects you inspired.***

   c. Successful research programs are comprised of successful research projects. Many perceive the success of research to be use of the project results, but use of research results and the return on investment is underreported. Research funding programs typically do not have the policy or program authority for implementing project results. It is therefore very important for the technical specialists and policymakers to document the use and value of research within your program area. Frequently, research is a component that contributes early in a policy or program discussion. Remember to comment on research contributions. This demonstrates strategic development of a concept and solution by the technical community and the value of research funding programs.

Collaborating on Research Program & Project Management

The TRB Conduct of Research and the AASHTO Research Advisory Committees' Joint Task Force on Coordination and Collaboration is pleased to announce a new transportation research collaboration tool, the Research Program and Project Management (RPPM) website. This tool is being hosted by USDOT RITA on their TransportationResearch.gov collaborative SharePoint site along with the RITA Research Clusters (RC) web pages. RPPM allows the transportation research community (researchers, research managers, research sponsors) to share information and collaborate on common issues and includes a team collaboration web page.

Anyone can view the site, but to become a full participant by posting documents, discussion items, announcements, and links, you must register.

Over time, the site will become a repository of documents and work products forming a collective set of best practices for planning, funding, conducting, managing, implementing, and evaluating transportation research programs and projects. The site's value comes from the documents and work products contributed by the research community.

If you have documents or work products on setting research agendas, carrying out research, collaborating in research activities, delivering research results, communicating the value of research, come join us.

Additional Resources

➢ **TRB Webinars**
  ❖ How to Write an Effective Problem Statement
  ❖ TRB Databases
  ❖ TRID

➢ Transportation Research Thesaurus can help make sure we are all speaking the same language.

➢ TRB Staff

➢ TRB Conduct of Research (COR) Committee

➢ TRB Technology Transfer (T^2) Committee

➢ TRB Library and Information Science for Transportation (LIST) Committee